

SEQUENCE LISTING

(1) GENERAL INFORMATION

- (i) APPLICANT: Presnell, Scott R.
Gilbert, Teresa
 - (ii) TITLE OF THE INVENTION: MAMMALIAN CYTOKINE-LIKE
FACTOR-7
 - (iii) NUMBER OF SEQUENCES: 43
 - (iv) CORRESPONDENCE ADDRESS:
 - (A) ADDRESSEE: ZymoGenetics, Inc.
 - (B) STREET: 1201 Eastlake Avenue East
 - (C) CITY: Seattle
 - (D) STATE: WA
 - (E) COUNTRY: USA
 - (F) ZIP: 98102
 - (v) COMPUTER READABLE FORM:
 - (A) MEDIUM TYPE: Diskette
 - (B) COMPUTER: IBM Compatible
 - (C) OPERATING SYSTEM: DOS
 - (D) SOFTWARE: FastSEQ for Windows Version 2.0
 - (vi) CURRENT APPLICATION DATA:
 - (A) APPLICATION NUMBER:
 - (B) FILING DATE:
 - (C) CLASSIFICATION:
 - (vii) PRIOR APPLICATION DATA:
 - (A) APPLICATION NUMBER:
 - (B) FILING DATE:
 - (viii) ATTORNEY/AGENT INFORMATION:
 - (A) NAME: Lunn, Paul G
 - (B) REGISTRATION NUMBER: 32,743
 - (C) REFERENCE/DOCKET NUMBER: 97-15
 - (ix) TELECOMMUNICATION INFORMATION:
 - (A) TELEPHONE: 206-442-6627
 - (B) TELEFAX: 206-442-6678
 - (C) TELEX:
- (2) INFORMATION FOR SEQ ID NO:1:
- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 736 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(ix) FEATURE:

(A) NAME/KEY: Coding Sequence

(B) LOCATION: 57...596

(D) OTHER INFORMATION:

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1:

GAATTCGGCA CGAGGAGGCG GGCAGCAGCT GCAGGCTGAC CTTGCAGCTT GCGGGA
ATG 59

Met

1

GAC TGG CCT CAC AAC CTG CTG TTT CTT CTT ACC ATT TCC ATC TTC
CTG 107

Asp Trp Pro His Asn Leu Leu Phe Leu Leu Thr Ile Ser Ile Phe
Leu

5

10

15

GGG CTG GGC CAG CCC AGG AGC CCC AAA AGC AAG AGG AAG GGG CAA
GGG 155

Gly Leu Gly Gln Pro Arg Ser Pro Lys Ser Lys Arg Lys Gly Gln
Gly

20

25

30

CGG CCT GGG CCC CTG GCC CCT GGC CCT CAC CAG GTG CCA CTG GAC
CTG 203

Arg Pro Gly Pro Leu Ala Pro Gly Pro His Gln Val Pro Leu Asp
Leu

35

40

45

GTG TCA CGG ATG AAA CCG TAT GCC CGC ATG GAG GAG TAT GAG AGG
AAC 251

Val Ser Arg Met Lys Pro Tyr Ala Arg Met Glu Glu Tyr Glu Arg
Asn

50

55

60

65

ATC GAG GAG ATG GTG GCC CAG CTG AGG AAC AGC TCA GAG CTG GCC
CAG 299

Ile Glu Glu Met Val Ala Gln Leu Arg Asn Ser Ser Glu Leu Ala
Gln

70

75

80

AGA AAG TGT GAG GTC AAC TTG CAG CTG TGG ATG TCC AAC AAG AGG
AGC 347

```

Arg Lys Cys Glu Val Asn Leu Gln Leu Trp Met Ser Asn Lys Arg
Ser
      85                      90                      95

CTG TCT CCC TGG GGC TAC AGC ATC AAC CAC GAC CCC AGC CGT ATC
CCC      395
Leu Ser Pro Trp Gly Tyr Ser Ile Asn His Asp Pro Ser Arg Ile
Pro
      100                      105                      110

GTG GAC CTG CCG GAG GCA CGG TGC CTG TGT CTG GGC TGT GTG AAC
CCC      443
Val Asp Leu Pro Glu Ala Arg Cys Leu Cys Leu Gly Cys Val Asn
Pro
      115                      120                      125

TTC ACC ATG CAG GAG GAC CGC AGC ATG GTG AGC GTG CCG GTG TTC
AGC      491
Phe Thr Met Gln Glu Asp Arg Ser Met Val Ser Val Pro Val Phe
Ser
      130                      135                      140
145

CAG GTT CCT GTG CGC CGC CGC CTC TGC CCG CCA CCG CCC CGC ACA
GGG      539
Gln Val Pro Val Arg Arg Arg Leu Cys Pro Pro Pro Pro Arg Thr
Gly
      150                      155                      160

CCT TGC CGC CAG CGC GCA GTC ATG GAG ACC ATC GCT GTG GGC TGC
ACC      587
Pro Cys Arg Gln Arg Ala Val Met Glu Thr Ile Ala Val Gly Cys
Thr
      165                      170                      175

TGC ATC TTC TGAATCACCT GGCCCAGAAG CCAGGCCAGC AGCCCGAGAC
CATCCTCCT      645
Cys Ile Phe
      180

TGCACCTTTG TGCCAAGAAA GGCCTATGAA AAGTAAACAC TGACTTTTGA
AAGCCAGAAA      705
AAAAAAAAAA AAAAAAATT CCTGCGGCCG C
736

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(2) INFORMATION FOR SEQ ID NO:2:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 180 amino acids
 - (B) TYPE: amino acid
 - (C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(v) FRAGMENT TYPE: internal

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:2:

Met	Asp	Trp	Pro	His	Asn	Leu	Leu	Phe	Leu	Leu	Thr	Ile	Ser	Ile
Phe														
1				5					10					15
Leu	Gly	Leu	Gly	Gln	Pro	Arg	Ser	Pro	Lys	Ser	Lys	Arg	Lys	Gly
Gln														
			20					25					30	
Gly	Arg	Pro	Gly	Pro	Leu	Ala	Pro	Gly	Pro	His	Gln	Val	Pro	Leu
Asp														
		35					40					45		
Leu	Val	Ser	Arg	Met	Lys	Pro	Tyr	Ala	Arg	Met	Glu	Glu	Tyr	Glu
Arg														
	50					55					60			
Asn	Ile	Glu	Glu	Met	Val	Ala	Gln	Leu	Arg	Asn	Ser	Ser	Glu	Leu
Ala														
65					70					75				
80														
Gln	Arg	Lys	Cys	Glu	Val	Asn	Leu	Gln	Leu	Trp	Met	Ser	Asn	Lys
Arg														
			85						90					95
Ser	Leu	Ser	Pro	Trp	Gly	Tyr	Ser	Ile	Asn	His	Asp	Pro	Ser	Arg
Ile														
			100					105					110	
Pro	Val	Asp	Leu	Pro	Glu	Ala	Arg	Cys	Leu	Cys	Leu	Gly	Cys	Val
Asn														
		115					120					125		
Pro	Phe	Thr	Met	Gln	Glu	Asp	Arg	Ser	Met	Val	Ser	Val	Pro	Val
Phe														
	130					135					140			
Ser	Gln	Val	Pro	Val	Arg	Arg	Arg	Leu	Cys	Pro	Pro	Pro	Pro	Arg
Thr														
145					150					155				
160														
Gly	Pro	Cys	Arg	Gln	Arg	Ala	Val	Met	Glu	Thr	Ile	Ala	Val	Gly
Cys														
			165						170				175	
Thr	Cys	Ile	Phe											
			180											

(2) INFORMATION FOR SEQ ID NO:3:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 397 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Other

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:3:

```

AGGCGGGCAN AGCTGCAGGC TGACCTTGCA GCTTGGCGGA ATGGACTGGC
CTCACAACCT      60
GCTGTTTCTT CTTACCATT CCATCTTCCT GGGGCTGGGC AGCCAGGAGC
CCCAAAGCA      120
AGAGGAAGGG GCAAGGGCGG CCTGGGCCC CN TGGCCTGGCC TCACCAGGTG
CCACTGGACC      180
TGGTGTCACG GATGAAACCG TATGCCCCGCA TGGAGGAGTA TGAGAGGAAC
ATCGAGGAGA      240
TGGTGGCCCCA GCTGAGGAAC AGCTCANAAG CTGGCCCAGA GAAAGTGTGA
GGTCAACTTG      300
CAGCTGTGGA TGTCCAACAA GAAGGAGCCT GTCTCCCTTG GGGCTACAAG
CATCAACCAC      360
CGACCCAGC CGTATCCCCG TGGGACCTTG CCGGGAC
397

```

(2) INFORMATION FOR SEQ ID NO:4:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 18 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Other

(vii) IMMEDIATE SOURCE:

- (B) CLONE: ZC13265

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:4:

```

TTACCATTTC CATCTTCC
18

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(2) INFORMATION FOR SEQ ID NO:5:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 18 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Other

(vii) IMMEDIATE SOURCE:

- (B) CLONE: ZC13266

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:5:

CCCTTCCTCT TGCTTTTG
18

(2) INFORMATION FOR SEQ ID NO:6:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 29 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Other

(vii) IMMEDIATE SOURCE:

- (B) CLONE: ZC13326

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:6:

CAAGGATCCC AGCCCAGGAG CCCCAAAG
29

(2) INFORMATION FOR SEQ ID NO:7:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 30 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Other

(vii) IMMEDIATE SOURCE:

- (B) CLONE: ZC13330

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:7:

GACCTCGAGT CAGAAGATGC AGGTGCAGCC
30

(2) INFORMATION FOR SEQ ID NO:8:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 30 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Other

(vii) IMMEDIATE SOURCE:

- (B) CLONE: ZC13325

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:8:

GTCGAATTCA TGGACTGGCC TCACAACCTG
30

(2) INFORMATION FOR SEQ ID NO:9:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 27 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Other

(vii) IMMEDIATE SOURCE:

- (B) CLONE: ZC13327

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:9:

GAAGGATCCG AAGATGCAGG TGCAGCC
27

(2) INFORMATION FOR SEQ ID NO:10:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 10 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:10:

Asp	Tyr	Lys	Asp	Asp	Asp	Asp	Lys	Gly	Ser
1				5				10	

(2) INFORMATION FOR SEQ ID NO:11:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 692 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(ix) FEATURE:

- (A) NAME/KEY: Coding Sequence
- (B) LOCATION: 50...589
- (D) OTHER INFORMATION:

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:11:

GGGGTTCCTG GCGGGTGGCA GCTGCGGGCC TGCCGCCTGA CTTGGTGGG ATG GAC
 TGG 58 Met Asp
 Trp 1

CCG CAC AGC CTG CTC TTC CTC CTG GCC ATC TCC ATC TTC CTG GCG
 CCA 106
 Pro His Ser Leu Leu Phe Leu Leu Ala Ile Ser Ile Phe Leu Ala
 Pro 5 10 15

AGC CAC CCC CGG AAC ACC AAA GGC AAA AGA AAA GGG CAA GGG AGG
 CCC 154
 Ser His Pro Arg Asn Thr Lys Gly Lys Arg Lys Gly Gln Gly Arg
 Pro 20 25 30
 35

AGT CCC TTG GCC CCT GGG CCT CAT CAG GTG CCG CTG GAC CTG GTG
 TCT 202
 Ser Pro Leu Ala Pro Gly Pro His Gln Val Pro Leu Asp Leu Val
 Ser 40 45 50

CGA GTA AAG CCC TAC GCT CGA ATG GAA GAG TAT GAG CGG AAC CTT
 GGG 250
 Arg Val Lys Pro Tyr Ala Arg Met Glu Glu Tyr Glu Arg Asn Leu
 Gly 55 60 65

GAG ATG GTG GCC CAG CTG AGG AAC AGC TCC GAG CCA GCC AAG AAG
 AAA 298
 Glu Met Val Ala Gln Leu Arg Asn Ser Ser Glu Pro Ala Lys Lys
 Lys 70 75 80

TGT GAA GTC AAT CTA CAG CTG TGG TTG TCC AAC AAG AGG AGC CTG
 TCC 346
 Cys Glu Val Asn Leu Gln Leu Trp Leu Ser Asn Lys Arg Ser Leu
 Ser 85 90 95

CCA TGG GGC TAC AGC ATC AAC CAC GAC CCC AGC CGC ATC CCT GCG
 GAC 394
 Pro Trp Gly Tyr Ser Ile Asn His Asp Pro Ser Arg Ile Pro Ala
 Asp 100 105 110
 115

TTG CCC GAG GCG CGG TGC CTA TGT TTG GGT TGC GTG AAT CCC TTC
 ACC 442
 Leu Pro Glu Ala Arg Cys Leu Cys Leu Gly Cys Val Asn Pro Phe
 Thr
 120 125 130

ATG CAG GAG GAC CGT AGC ATG GTG AGC GTG CCA GTG TTC AGC CAG
 GTG 490
 Met Gln Glu Asp Arg Ser Met Val Ser Val Pro Val Phe Ser Gln
 Val
 135 140 145

CCG GTG CGC CGC CGC CTC TGT CCT CAA CCT CCT CGC CCT GGG CCC
 TGC 538

Pro Val Arg Arg Arg Leu Cys Pro Gln Pro Pro Arg Pro Gly Pro
 Cys
 150 155 160

CGC CAG CGT GTC GTC ATG GAG ACC ATC GCT GTG GGT TGC ACC TGC
 ATC 586
 Arg Gln Arg Val Val Met Glu Thr Ile Ala Val Gly Cys Thr Cys
 Ile
 165 170 175

TTC TGAGCCAACC ACCAACCCGG TGGCCTCTGC AACAACCCTC CCTCCCTGCA
 CCCACT 645
 Phe
 180

GTGACCCTCA AGGCTGATAA ACAGTAAACG CTGTTCTTTG TAAAGGA
 692

(2) INFORMATION FOR SEQ ID NO:12:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 180 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(v) FRAGMENT TYPE: internal

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:12:

Met Asp Trp Pro His Ser Leu Leu Phe Leu Leu Ala Ile Ser Ile
 Phe
 1 5 10 15

```

Leu Ala Pro Ser His Pro Arg Asn Thr Lys Gly Lys Arg Lys Gly
Gln
      20      25      30
Gly Arg Pro Ser Pro Leu Ala Pro Gly Pro His Gln Val Pro Leu
Asp
      35      40      45
Leu Val Ser Arg Val Lys Pro Tyr Ala Arg Met Glu Glu Tyr Glu
Arg
      50      55      60
Asn Leu Gly Glu Met Val Ala Gln Leu Arg Asn Ser Ser Glu Pro
Ala
      65      70      75
80
Lys Lys Lys Cys Glu Val Asn Leu Gln Leu Trp Leu Ser Asn Lys
Arg
      85      90      95
Ser Leu Ser Pro Trp Gly Tyr Ser Ile Asn His Asp Pro Ser Arg
Ile
      100      105      110
Pro Ala Asp Leu Pro Glu Ala Arg Cys Leu Cys Leu Gly Cys Val
Asn
      115      120      125

Pro Phe Thr Met Gln Glu Asp Arg Ser Met Val Ser Val Pro Val
Phe
      130      135      140
Ser Gln Val Pro Val Arg Arg Arg Leu Cys Pro Gln Pro Pro Arg
Pro
      145      150      155
160
Gly Pro Cys Arg Gln Arg Val Val Met Glu Thr Ile Ala Val Gly
Cys
      165      170      175
Thr Cys Ile Phe
      180

```

(2) INFORMATION FOR SEQ ID NO:13:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 497 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:13:

```

GGGGTTCCTG GCGGGTGGCA GCTGCGGGCC TGCCGCCTGA CTTGGTGGGA
TGGACTGGCC      60

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```

GCACAGCCTG CTCTTCCTCC TGGCCATCTC CATCTTCCTG GCGCCAAGCC
ACCCCCGGAA      120
CACCAAAGGC AAAAGAAAAG GGCAAGGGAG GCCCAGTCCC TTGGCCCCTG
GGCTCATCAG      180
GTGCCGCTGG ACCTGGTGTC TCGAGTAAAG CCCTACGCTC GAATGGAAGA
GTATGAGCGG      240
AACCTTGGGG AGATGGTGGC CCAGCTGAGG AACAGCTCCG AGCCAGCCAA
GAAGAAATGT      300
GAAGTCAATC TACAGCTGTG GTTGTCCAAC AAGAGGAGCC TGTCCCCATG
GGGCTACAGC      360
ATCAACCACG ACCCCAGCCG CATCCCTGCG GACTTGCCCCG AGGCGCGGTG
CCTATGTTTG      420
GGTTGCGTGA ATCCCTTCAC CATGCAGGAG GACCGTAGCA TGGTGAGCGT
GCCAGTGTTT      480
AGCCAGGTGC CGGTGCG
497

```

(2) INFORMATION FOR SEQ ID NO:14:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 160 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:14:

```

Gln Pro Arg Ser Pro Lys Ser Lys Arg Lys Gly Gln Gly Arg Pro
Gly
1              5              10              15
Pro Leu Ala Pro Gly Pro His Gln Val Pro Leu Asp Leu Val Ser
Arg
              20              25              30
Met Lys Pro Tyr Ala Arg Met Glu Glu Tyr Glu Arg Asn Ile Glu
Glu
              35              40              45
Met Val Ala Gln Leu Arg Asn Ser Ser Glu Leu Ala Gln Arg Lys
Cys
              50              55              60
Glu Val Asn Leu Gln Leu Trp Met Ser Asn Lys Arg Ser Leu Ser
Pro
65              70              75
80
Trp Gly Tyr Ser Ile Asn His Asp Pro Ser Arg Ile Pro Val Asp
Leu
              85              90              95
Pro Glu Ala Arg Cys Leu Cys Leu Gly Cys Val Asn Pro Phe Thr
Met
              100              105              110

```

```

Gln Glu Asp Arg Ser Met Val Ser Val Pro Val Phe Ser Gln Val
Pro
      115                      120                      125
Val Arg Arg Arg Leu Cys Pro Pro Pro Pro Arg Thr Gly Pro Cys
Arg
      130                      135                      140
Gln Arg Ala Val Met Glu Thr Ile Ala Val Gly Cys Thr Cys Ile
Phe
145                      150                      155
160

```

(2) INFORMATION FOR SEQ ID NO:15:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 160 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:15:

```

Gln Pro Arg Ala Pro Lys Ser Lys Arg Lys Gly Gln Gly Arg Pro
Gly
  1                      5                      10                      15
Pro Leu Ala Pro Gly Pro His Gln Val Pro Leu Asp Leu Val Ser
Arg
      20                      25                      30
Met Lys Pro Tyr Ala Arg Met Glu Glu Tyr Glu Arg Asn Ile Glu
Glu
      35                      40                      45
Met Val Ala Gln Leu Arg Asn Ser Ser Glu Leu Ala Gln Arg Lys
Cys
      50                      55                      60
Glu Val Asn Leu Gln Leu Trp Met Ser Asn Lys Arg Ser Leu Ser
Pro
      65                      70                      75
80
Trp Gly Tyr Ser Ile Asn His Asp Pro Ser Arg Ile Pro Val Asp
Leu
      85                      90                      95
Pro Glu Ala Arg Cys Leu Cys Leu Gly Cys Val Asn Pro Phe Thr
Met
      100                      105                      110
Gln Glu Asp Arg Ser Met Val Ser Val Pro Val Phe Ser Gln Val
Pro
      115                      120                      125
Val Arg Arg Arg Leu Cys Pro Pro Pro Pro Arg Thr Gly Pro Cys
Arg
      130                      135                      140

```

Gln Arg Ala Val Met Glu Thr Ile Ala Val Gly Cys Thr Cys Ile
Phe
145 150 155
160

(2) INFORMATION FOR SEQ ID NO:16:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 160 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:16:

Gln Pro Arg Ser Pro Lys Ala Lys Arg Lys Gly Gln Gly Arg Pro
Gly
1 5 10 15
Pro Leu Ala Pro Gly Pro His Gln Val Pro Leu Asp Leu Val Ser
Arg
20 25 30
Met Lys Pro Tyr Ala Arg Met Glu Glu Tyr Glu Arg Asn Ile Glu
Glu
35 40 45
Met Val Ala Gln Leu Arg Asn Ser Ser Glu Leu Ala Gln Arg Lys
Cys
50 55 60
Glu Val Asn Leu Gln Leu Trp Met Ser Asn Lys Arg Ser Leu Ser
Pro
65 70 75
80
Trp Gly Tyr Ser Ile Asn His Asp Pro Ser Arg Ile Pro Val Asp
Leu
85 90 95
Pro Glu Ala Arg Cys Leu Cys Leu Gly Cys Val Asn Pro Phe Thr
Met
100 105 110
Gln Glu Asp Arg Ser Met Val Ser Val Pro Val Phe Ser Gln Val
Pro
115 120 125
Val Arg Arg Arg Leu Cys Pro Pro Pro Pro Arg Thr Gly Pro Cys
Arg
130 135 140
Gln Arg Ala Val Met Glu Thr Ile Ala Val Gly Cys Thr Cys Ile
Phe
145 150 155
160

(2) INFORMATION FOR SEQ ID NO:17:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 160 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:17:

```

Gln Pro Arg Ser Pro Lys Ser Lys Arg Lys Gly Gln Gly Arg Pro
Ala
1          5          10          15
Pro Leu Ala Pro Gly Pro His Gln Val Pro Leu Asp Leu Val Ser
Arg
          20          25          30
Met Lys Pro Tyr Ala Arg Met Glu Glu Tyr Glu Arg Asn Ile Glu
Glu
          35          40          45
Met Val Ala Gln Leu Arg Asn Ser Ser Glu Leu Ala Gln Arg Lys
Cys
          50          55          60
Glu Val Asn Leu Gln Leu Trp Met Ser Asn Lys Arg Ser Leu Ser
Pro
          65          70          75
80
Trp Gly Tyr Ser Ile Asn His Asp Pro Ser Arg Ile Pro Val Asp
Leu
          85          90          95
Pro Glu Ala Arg Cys Leu Cys Leu Gly Cys Val Asn Pro Phe Thr
Met
          100          105          110
Gln Glu Asp Arg Ser Met Val Ser Val Pro Val Phe Ser Gln Val
Pro
          115          120          125
Val Arg Arg Arg Leu Cys Pro Pro Pro Pro Arg Thr Gly Pro Cys
Arg
          130          135          140
Gln Arg Ala Val Met Glu Thr Ile Ala Val Gly Cys Thr Cys Ile
Phe
          145          150          155
160

```

(2) INFORMATION FOR SEQ ID NO:18:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 160 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:18:

Gln	Pro	Arg	Ser	Pro	Lys	Ser	Lys	Arg	Lys	Gly	Gln	Gly	Arg	Pro
Gly														
1				5					10					15
Pro	Leu	Ala	Pro	Gly	Pro	His	Gln	Val	Pro	Leu	Asp	Leu	Val	Ala
Arg														
			20					25					30	
Met	Lys	Pro	Tyr	Ala	Arg	Met	Glu	Glu	Tyr	Glu	Arg	Asn	Ile	Glu
Glu														
		35					40					45		
Met	Val	Ala	Gln	Leu	Arg	Asn	Ser	Ser	Glu	Leu	Ala	Gln	Arg	Lys
Cys														
	50					55					60			
Glu	Val	Asn	Leu	Gln	Leu	Trp	Met	Ser	Asn	Lys	Arg	Ser	Leu	Ser
Pro														
65					70					75				
80														
Trp	Gly	Tyr	Ser	Ile	Asn	His	Asp	Pro	Ser	Arg	Ile	Pro	Val	Asp
Leu														
			85						90					95
Pro	Glu	Ala	Arg	Cys	Leu	Cys	Leu	Gly	Cys	Val	Asn	Pro	Phe	Thr
Met														
			100					105					110	
Gln	Glu	Asp	Arg	Ser	Met	Val	Ser	Val	Pro	Val	Phe	Ser	Gln	Val
Pro														
		115					120					125		
Val	Arg	Arg	Arg	Leu	Cys	Pro	Pro	Pro	Pro	Arg	Thr	Gly	Pro	Cys
Arg														
	130				135					140				
Gln	Arg	Ala	Val	Met	Glu	Thr	Ile	Ala	Val	Gly	Cys	Thr	Cys	Ile
Phe														
145					150					155				
160														

(2) INFORMATION FOR SEQ ID NO:19:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 160 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:19:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 160 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:20:

Gln Pro Arg Ser Pro Lys Ser Lys Arg Lys Gly Gln Gly Arg Pro
Gly
1 5 10 15
Pro Leu Ala Pro Gly Pro His Gln Val Pro Leu Asp Leu Val Ser
Arg

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 160 amino acids
 (B) TYPE: amino acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:21:

[illegible]

```

      50              55              60
Glu Val Asn Leu Gln Leu Trp Met Ser Asn Lys Arg Ser Leu Ser
Pro
65              70              75
80
Trp Gly Tyr Ser Ile Asn His Asp Pro Ser Arg Ile Pro Val Asp
Leu
      85              90              95
Pro Glu Ala Arg Cys Leu Cys Leu Gly Cys Val Asn Pro Phe Thr
Met
      100              105              110
Gln Glu Asp Arg Ser Met Val Ser Val Pro Val Phe Ser Gln Val
Pro
      115              120              125
Val Arg Arg Arg Leu Cys Pro Pro Pro Pro Arg Thr Gly Pro Cys
Arg
      130              135              140
Gln Arg Phe Val Met Glu Thr Ile Ala Val Gly Cys Thr Cys Ile
Phe
      145              150              155
160

```

(2) INFORMATION FOR SEQ ID NO:22:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 160 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:22:

```

Gln Pro Arg Ser Pro Lys Ser Lys Arg Lys Gly Gln Gly Arg Pro
Gly
1              5              10              15
Pro Leu Ala Pro Gly Pro His Gln Val Pro Leu Asp Leu Val Gly
Arg
      20              25              30
Met Lys Pro Tyr Ala Arg Met Glu Glu Tyr Glu Arg Asn Ile Glu
Glu
      35              40              45
Met Val Ala Gln Leu Arg Asn Ser Ser Glu Leu Ala Gln Arg Lys
Cys
      50              55              60
Glu Val Asn Leu Gln Leu Trp Met Ser Asn Lys Arg Ser Leu Ser
Pro
65              70              75
80

```

```

Trp Gly Tyr Ser Ile Asn His Asp Pro Ser Arg Ile Pro Val Asp
Leu
      85                      90                      95
Pro Glu Ala Arg Cys Leu Cys Leu Gly Cys Val Asn Pro Phe Thr
Met
      100                      105                      110
Gln Glu Asp Arg Ser Met Val Ser Val Pro Val Phe Ser Gln Val
Pro
      115                      120                      125
Val Arg Arg Arg Leu Cys Pro Pro Pro Pro Arg Thr Gly Pro Cys
Arg
      130                      135                      140
Gln Arg Ala Val Met Glu Thr Ile Ala Val Gly Cys Thr Cys Ile
Phe
      145                      150                      155
160

```

(2) INFORMATION FOR SEQ ID NO:23:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 160 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:23:

```

Gln Pro Arg Ser Pro Lys Ser Lys Arg Lys Gly Gln Gly Arg Pro
Ser
  1                      5                      10                      15
Pro Leu Ala Pro Gly Pro His Gln Val Pro Leu Asp Leu Val Ser
Arg
      20                      25                      30
Met Lys Pro Tyr Ala Arg Met Glu Glu Tyr Glu Arg Asn Ile Glu
Glu
      35                      40                      45
Met Val Ala Gln Leu Arg Asn Ser Ser Glu Leu Ala Gln Arg Lys
Cys
      50                      55                      60
Glu Val Asn Leu Gln Leu Trp Met Ser Asn Lys Arg Ser Leu Ser
Pro
  65                      70                      75
80
Trp Gly Tyr Ser Ile Asn His Asp Pro Ser Arg Ile Pro Val Asp
Leu
      85                      90                      95
Pro Glu Ala Arg Cys Leu Cys Leu Gly Cys Val Asn Pro Phe Thr
Met

```

```

          100                      105                      110
Gln Glu Asp Arg Ser Met Val Ser Val Pro Val Phe Ser Gln Val
Pro
          115                      120                      125
Val Arg Arg Arg Leu Cys Pro Pro Pro Pro Arg Thr Gly Pro Cys
Arg
          130                      135                      140
Gln Arg Ala Val Met Glu Thr Ile Ala Val Gly Cys Thr Cys Ile
Phe
          145                      150                      155
160

```

(2) INFORMATION FOR SEQ ID NO:24:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 160 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:24:

```

Gln Pro Arg Ser Pro Lys Val Lys Arg Lys Gly Gln Gly Arg Pro
Gly
  1                      5                      10                      15
Pro Leu Ala Pro Gly Pro His Gln Val Pro Leu Asp Leu Val Ser
Arg
          20                      25                      30
Met Lys Pro Tyr Ala Arg Met Glu Glu Tyr Glu Arg Asn Ile Glu
Glu
          35                      40                      45
Met Val Ala Gln Leu Arg Asn Ser Ser Glu Leu Ala Gln Arg Lys
Cys
          50                      55                      60
Glu Val Asn Leu Gln Leu Trp Met Ser Asn Lys Arg Ser Leu Ser
Pro
          65                      70                      75
80
Trp Gly Tyr Ser Ile Asn His Asp Pro Ser Arg Ile Pro Val Asp
Leu
          85                      90                      95
Pro Glu Ala Arg Cys Leu Cys Leu Gly Cys Val Asn Pro Phe Thr
Met
          100                      105                      110
Gln Glu Asp Arg Ser Met Val Ser Val Pro Val Phe Ser Gln Val
Pro
          115                      120                      125
Val Arg Arg Arg Leu Cys Pro Pro Pro Pro Arg Thr Gly Pro Cys
Arg

```

(A) LENGTH: 160 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

[illegible]

(2) INFORMATION FOR SEQ ID NO:26:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 97 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:26:

```

Cys Glu Val Asn Leu Gln Leu Trp Met Ser Asn Lys Arg Ser Leu
Ser
1          5          10          15
Pro Trp Gly Tyr Ser Ile Asn His Asp Pro Ser Arg Ile Pro Val
Asp
          20          25          30
Leu Pro Glu Ala Arg Cys Leu Cys Leu Gly Cys Val Asn Pro Phe
Thr
          35          40          45
Met Gln Glu Asp Arg Ser Met Val Ser Val Pro Val Phe Ser Gln
Val
          50          55          60
Pro Val Arg Arg Arg Leu Cys Pro Pro Pro Pro Arg Thr Gly Pro
Cys
65          70          75
80
Arg Gln Arg Ala Val Met Glu Thr Ile Ala Val Gly Cys Thr Cys
Ile
          85          90          95
Phe

```

(2) INFORMATION FOR SEQ ID NO:27:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 100 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:27:

```

Pro Arg Ser Pro Lys Ser Lys Arg Lys Gly Gln Gly Arg Pro Gly
Pro
1          5          10          15
Leu Ala Pro Gly Pro His Gln Val Pro Leu Asp Leu Val Ser Arg
Met
          20          25          30

```

Lys Pro Tyr Ala Arg Met Glu Glu Tyr Glu Arg Asn Ile Glu Glu
 Met
 35 40 45
 Val Ala Gln Leu Arg Asn Ser Ser Glu Leu Ala Gln Arg Lys Cys
 Glu
 50 55 60
 Val Asn Leu Gln Leu Trp Met Ser Asn Lys Arg Ser Leu Ser Pro
 Trp
 65 70 75
 80
 Gly Tyr Ser Ile Asn His Asp Pro Ser Arg Ile Pro Val Asp Leu
 Pro
 85 90 95
 Glu Ala Arg Cys
 100

(2) INFORMATION FOR SEQ ID NO:28:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 17 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:28:

Pro Arg Ser Pro Lys Ser Lys Arg Lys Gly Gln Gly Arg Pro Gly
 Pro
 1 5 10 15
 Leu

(2) INFORMATION FOR SEQ ID NO:29:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 17 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:29:

Arg Met Lys Pro Tyr Ala Arg Met Glu Glu Tyr Glu Arg Asn Ile
 Glu
 1 5 10 15
 Glu

(2) INFORMATION FOR SEQ ID NO:30:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 16 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:30:

Asn	His	Asp	Pro	Ser	Arg	Ile	Pro	Val	Asp	Leu	Pro	Glu	Ala	Arg
Cys														
1				5				10					15	

(2) INFORMATION FOR SEQ ID NO:31:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 19 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:31:

Pro	Val	Arg	Arg	Arg	Leu	Cys	Pro	Pro	Pro	Pro	Arg	Thr	Gly	Pro
Cys														
1				5				10					15	
Arg	Gln	Arg												

(2) INFORMATION FOR SEQ ID NO:32:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 47 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:32:

Pro	Arg	Ser	Pro	Lys	Ser	Lys	Arg	Lys	Gly	Gln	Gly	Arg	Pro	Gly
Pro														
1				5					10				15	
Leu	Ala	Pro	Gly	Pro	His	Gln	Val	Pro	Leu	Asp	Leu	Val	Ser	Arg
Met														
				20				25					30	
Lys	Pro	Tyr	Ala	Arg	Met	Glu	Glu	Tyr	Glu	Arg	Asn	Ile	Glu	Glu

35

40

45

(2) INFORMATION FOR SEQ ID NO:33:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 70 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:33:

Arg	Met	Lys	Pro	Tyr	Ala	Arg	Met	Glu	Glu	Tyr	Glu	Arg	Asn	Ile
Glu														
1				5				10					15	
Glu	Met	Val	Ala	Gln	Leu	Arg	Asn	Ser	Ser	Glu	Leu	Ala	Gln	Arg
Lys														
			20					25					30	
Cys	Glu	Val	Asn	Leu	Gln	Leu	Trp	Met	Ser	Asn	Lys	Arg	Ser	Leu
Ser														
		35					40					45		
Pro	Trp	Gly	Tyr	Ser	Ile	Asn	His	Asp	Pro	Ser	Arg	Ile	Pro	Val
Asp														
	50					55						60		
Leu	Pro	Glu	Ala	Arg	Cys									
65					70									

(2) INFORMATION FOR SEQ ID NO:34:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 61 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:34:

Asn	His	Asp	Pro	Ser	Arg	Ile	Pro	Val	Asp	Leu	Pro	Glu	Ala	Arg
Cys														
1				5				10					15	
Leu	Cys	Leu	Gly	Cys	Val	Asn	Pro	Phe	Thr	Met	Gln	Glu	Asp	Arg
Ser														
			20					25					30	
Met	Val	Ser	Val	Pro	Val	Phe	Ser	Gln	Val	Pro	Val	Arg	Arg	Arg
Leu														
		35					40						45	

Cys Pro Pro Pro Pro Arg Thr Gly Pro Cys Arg Gln Arg
50 55 60

(2) INFORMATION FOR SEQ ID NO:35:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 73 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

```
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:35:
```

Asn	His	Asp	Pro	Ser	Arg	Ile	Pro	Val	Asp	Leu	Pro	Glu	Ala	Arg
Cys														
1				5					10					15
Leu	Cys	Leu	Gly	Cys	Val	Asn	Pro	Phe	Thr	Met	Gln	Glu	Asp	Arg
Ser														
			20					25					30	
Met	Val	Ser	Val	Pro	Val	Phe	Ser	Gln	Val	Pro	Val	Arg	Arg	Arg
Leu														
		35					40					45		
Cys	Pro	Pro	Pro	Pro	Arg	Thr	Gly	Pro	Cys	Arg	Gln	Arg	Ala	Val
Met														
	50					55					60			
Glu	Thr	Ile	Ala	Val	Gly	Cys	Thr	Cys						
65					70									

(2) INFORMATION FOR SEQ ID NO:36:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 158 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:36:

[illegible]

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 154 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:37:

[illegible]

```

His Asp Pro Ser Arg Ile Pro Val Asp Leu Pro Glu Ala Arg Cys
Leu
      85                      90                      95
Cys Leu Gly Cys Val Asn Pro Phe Thr Met Gln Glu Asp Arg Ser
Met
      100                      105                      110
Val Ser Val Pro Val Phe Ser Gln Val Pro Val Arg Arg Arg Leu
Cys
      115                      120                      125
Pro Pro Pro Pro Arg Thr Gly Pro Cys Arg Gln Arg Ala Val Met
Glu
      130                      135                      140
Thr Ile Ala Val Gly Cys Thr Cys Ile Phe
145                      150

```

(2) INFORMATION FOR SEQ ID NO:38:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 151 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:38:

```

Lys Gly Gln Gly Arg Pro Gly Pro Leu Ala Pro Gly Pro His Gln
Val
  1                      5                      10                      15
Pro Leu Asp Leu Val Ser Arg Met Lys Pro Tyr Ala Arg Met Glu
Glu
      20                      25                      30
Tyr Glu Arg Asn Ile Glu Glu Met Val Ala Gln Leu Arg Asn Ser
Ser
      35                      40                      45
Glu Leu Ala Gln Arg Lys Cys Glu Val Asn Leu Gln Leu Trp Met
Ser
      50                      55                      60
Asn Lys Arg Ser Leu Ser Pro Trp Gly Tyr Ser Ile Asn His Asp
Pro
      65                      70                      75
80
Ser Arg Ile Pro Val Asp Leu Pro Glu Ala Arg Cys Leu Cys Leu
Gly
      85                      90                      95
Cys Val Asn Pro Phe Thr Met Gln Glu Asp Arg Ser Met Val Ser
Val
      100                      105                      110
Pro Val Phe Ser Gln Val Pro Val Arg Arg Arg Leu Cys Pro Pro
Pro

```

[illegible]

(2) INFORMATION FOR SEQ ID NO:40:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 158 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:40:

```

Arg Asn Thr Lys Gly Lys Arg Lys Gly Gln Gly Arg Pro Ser Pro
Leu
1          5          10          15
Ala Pro Gly Pro His Gln Val Pro Leu Asp Leu Val Ser Arg Val
Lys
          20          25          30
Pro Tyr Ala Arg Met Glu Glu Tyr Glu Arg Asn Leu Gly Glu Met
Val
          35          40          45
Ala Gln Leu Arg Asn Ser Ser Glu Pro Ala Lys Lys Lys Cys Glu
Val
          50          55          60
Asn Leu Gln Leu Trp Leu Ser Asn Lys Arg Ser Leu Ser Pro Trp
Gly
65          70          75
80
Tyr Ser Ile Asn His Asp Pro Ser Arg Ile Pro Ala Asp Leu Pro
Glu
          85          90          95
Ala Arg Cys Leu Cys Leu Gly Cys Val Asn Pro Phe Thr Met Gln
Glu
          100         105         110
Asp Arg Ser Met Val Ser Val Pro Val Phe Ser Gln Val Pro Val
Arg
          115         120         125
Arg Arg Leu Cys Pro Gln Pro Pro Arg Pro Gly Pro Cys Arg Gln
Arg
          130         135         140
Val Val Met Glu Thr Ile Ala Val Gly Cys Thr Cys Ile Phe
145          150          155

```

(2) INFORMATION FOR SEQ ID NO:41:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 153 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:41:

```

Lys Arg Lys Gly Gln Gly Arg Pro Gly Pro Leu Ala Pro Gly Pro
His
1           5           10           15
Gln Val Pro Leu Asp Leu Val Ser Arg Met Lys Pro Tyr Ala Arg
Met
           20           25           30
Glu Glu Tyr Glu Arg Asn Ile Glu Glu Met Val Ala Gln Leu Arg
Asn
           35           40           45

Ser Ser Glu Leu Ala Gln Arg Lys Cys Glu Val Asn Leu Gln Leu
Trp
           50           55           60
Met Ser Asn Lys Arg Ser Leu Ser Pro Trp Gly Tyr Ser Ile Asn
His
           65           70           75
80
Asp Pro Ser Arg Ile Pro Val Asp Leu Pro Glu Ala Arg Cys Leu
Cys
           85           90           95
Leu Gly Cys Val Asn Pro Phe Thr Met Gln Glu Asp Arg Ser Met
Val
           100          105          110
Ser Val Pro Val Phe Ser Gln Val Pro Val Arg Arg Arg Leu Cys
Pro
           115          120          125
Pro Pro Pro Arg Thr Gly Pro Cys Arg Gln Arg Ala Val Met Glu
Thr
           130          135          140
Ile Ala Val Gly Cys Thr Cys Ile Phe
145          150

```

(2) INFORMATION FOR SEQ ID NO:42:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 128 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:42:

```

Met Lys Pro Tyr Ala Arg Met Glu Glu Tyr Glu Arg Asn Ile Glu
Glu

```

```

      1             5             10             15
Met Val Ala Gln Leu Arg-Asn Ser Ser Glu Leu Ala Gln Arg Lys
Cys

      20             25             30
Glu Val Asn Leu Gln Leu Trp Met Ser Asn Lys Arg Ser Leu Ser
Pro

      35             40             45
Trp Gly Tyr Ser Ile Asn His Asp Pro Ser Arg Ile Pro Val Asp
Leu

      50             55             60
Pro Glu Ala Arg Cys Leu Cys Leu Gly Cys Val Asn Pro Phe Thr
Met

      65             70             75
Gln Glu Asp Arg Ser Met Val Ser Val Pro Val Phe Ser Gln Val
Pro

      85             90             95
Val Arg Arg Arg Leu Cys Pro Pro Pro Pro Arg Thr Gly Pro Cys
Arg

      100            105            110
Gln Arg Ala Val Met Glu Thr Ile Ala Val Gly Cys Thr Cys Ile
Phe

      115            120            125

```

(2) INFORMATION FOR SEQ ID NO:43:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 157 amino acids

(B) TYPE: amino acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:43:

```

Arg Ser Pro Lys Ser Lys Arg Lys Gly Gln Gly Arg Pro Gly Pro
Leu

      5             10             15
Ala Pro Gly Pro His Gln Val Pro Leu Asp Leu Val Ser Arg Met
Lys

      20             25             30
Pro Tyr Ala Arg Met Glu Glu Tyr Glu Arg Asn Ile Glu Glu Met
Val

      35             40             45
Ala Gln Leu Arg Asn Ser Ser Glu Leu Ala Gln Arg Lys Cys Glu
Val

      50             55             60
Asn Leu Gln Leu Trp Met Ser Asn Lys Arg Ser Leu Ser Pro Trp
Gly

```


65						70										75
80	Tyr	Ser	Ile	Asn	His	Asp	Pro	Ser	Arg	Ile	Pro	Val	Asp	Leu	Pro	
	Glu															
					85					90						95
	Ala	Arg	Cys	Leu	Cys	Leu	Gly	Cys	Val	Asn	Pro	Phe	Thr	Met	Gln	
	Glu															
			100						105						110	
	Asp	Arg	Ser	Met	Val	Ser	Val	Pro	Val	Phe	Ser	Gln	Val	Pro	Val	
	Arg															
		115						120					125			
	Arg	Arg	Leu	Cys	Pro	Pro	Pro	Pro	Arg	Thr	Gly	Pro	Cys	Arg	Gln	
	Arg															
		130					135					140				
	Ala	Val	Met	Glu	Thr	Ile	Ala	Val	Gly	Cys	Thr	Cys	Ile			
	145					150					155					